

Public Meeting
for the
Proposed Effluent Limitations
Guidelines and Pretreatment
Standards for the Iron and Steel
Point Source Category

Washington, DC

U. S. Environmental Protection Agency
February 20, 2001

Purpose of the Public Meeting

- ☛ Review of the proposed regulation
- ☛ Answer questions on various aspects of the proposal

Overview of Presentation

☛ Background information on effluent guidelines

☛ Summary of Proposed Iron & Steel Rule

- Purpose of the rule
- General applicability & interface with MP&M rule
- Data collection activities
- Subcategorization
 - Technology options
 - Proposed regulated pollutants
 - Total costs and removals
- General implementation
- Economic impacts

Overview of Presentation, cont.

- ☛ Issues addressed in the recent notice
- ☛ How to submit comments
- ☛ Schedule
- ☛ EPA contact information
- ☛ Iron and Steel website information

What are Effluent Guidelines and Pretreatment Standards?

- ☛ National industrial wastewater regulations for both direct & indirect dischargers
- ☛ Industry specific
- ☛ Technology performance-based regulations

Purpose of Iron & Steel Rule

- ☛ Review existing Effluent Limitations Guidelines per CWA (40 CFR 420: the 1982 Rule)
- ☛ Address findings in the 1995 Preliminary Study of the Iron & Steel category (EPA821-R-95-037)
- ☛ Revise the 1982 rule to ease implementation
- ☛ Incorporate industry's updated wastewater management practices
- ☛ Subcategorization to promote co-treatment of similar wastewaters

General Applicability

☛ Facilities Subject to 40 CFR Part 420:

- Metallurgical cokemaking
- Ironmaking
- Integrated & non-integrated steelmaking
- Hot forming
- Steel finishing (including certain continuous electroplating operations)
- Direct reduced ironmaking, briquetting, & forging

☛ Primary SIC & NAICS Codes:

- SIC 3312 & 3316
- NAICS 3311 & 3312

Finishing Operations Proposed to be Regulated under the MP&M Rule (Part 438):

☛ The following manufacturing operations more closely resemble those in MP&M facilities:

- Cold forming of steel bar, rod, wire, pipe, or tube
- Batch steel electroplating
- Continuous electroplating or hot dip coating of long steel products
- Wire drawing & coating
- Batch hot dip coating

Estimated Number of Iron & Steel Facilities*

Direct discharge facilities: 133

Indirect discharge facilities: 70

Zero discharge facilities: 56

Total number of facilities is estimated to be 254

**Estimated numbers are based on operating sites in 1997
Some facilities are counted more than once*

Data Collection Activities

- ☛ 70 site visits in 19 States and Canada to gather information on manufacturing operations, wastewater treatment and management
- ☛ 16 facilities were selected for sampling
- ☛ Short or detailed survey questionnaire were sent to 399 facilities
- ☛ Follow-up surveys on capital cost, analytical data, and production data were also sent
- ☛ 5 stakeholder meetings

Proposed
Subcategorization
for
Iron & Steel Rule

1982 Regulation

Proposed Regulation

A. Cokemaking	A. Cokemaking	
B. Sintering C. Ironmaking	B. Ironmaking	
D. Steelmaking E. Vacuum Degassing F. Continuous Casting	C. Integrated Steelmaking	E. Non-integrated Steelmaking and Hot Forming
G. Hot Forming	D. Integrated & Stand-alone Hot Forming	
H. Salt Bath Descaling I. Acid Pickling J. Cold Forming K. Alkaline Cleaning L. Hot Coating	F. Steel Finishing	
	G. Other Operations	

Proposed Subcategorization

<u>SUBCATEGORY</u>	<u>SEGMENT</u>	<u>OPERATION/PROCESS</u>
A. Cokemaking	By-Product Other - Nonrecovery	
B. Ironmaking	Blast Furnaces Sintering	Sintering - dry Sintering - wet
C. Integrated Steelmaking		Basic Oxygen Furnaces Wet - Open Wet - Suppressed Semi-Wet Vacuum Degassing Continuous Casting Ladle Metallurgy

Proposed Subcategorization, cont.

<u>SUBCATEGORY</u>	<u>SEGMENT</u>	<u>OPERATION/PROCESS</u>
D. Integrated and Stand Alone Hot Forming	Carbon & Alloy	
	Stainless	
E. Non-Integrated Steelmaking and Hot Forming	Carbon & Alloy	Electric Arc Furnaces
		Vacuum Degassing
		Continuous Casting
		Hot Forming
		Ladle Metallurgy

Proposed Subcategorization, cont.

<u>SUBCATEGORY</u>	<u>SEGMENT</u>	<u>OPERATION/PROCESS</u>
F. Steel Finishing	Carbon & Alloy	Acid Pickling Sulfuric
		Acid Pickling Hydrochloric
		Cold Forming
		Alkaline Cleaning
		Hot Coating
		Electroplating
		Continuous Annealing
		Acid Regeneration
Steel Finishing	Stainless	Descaling - Salt Bath, ESS
		Acid Pickling - Combination
		Cold Forming
		Alkaline Cleaning
		Continuous Annealing
		Acid Regeneration

Proposed Subcategorization, cont.

SUBCATEGORY

SEGMENT

G. Other Operations

Direct Reduced Ironmaking (DRI)

Forging

Briquetting

Proposed Technology Options for Cokemaking

TECHNICAL COMPONENTS

BY-PRODUCT

BAT/NSPS/PSNS:

- ☛ Tar removal; equalization; ammonia stripping; temperature control; equalization; single-stage biological treatment with nitrification; alkaline chlorination; and sludge dewatering

PSES(co-proposed options):

- ☛ Tar removal; equalization; and ammonia stripping
- ☛ Tar removal; equalization; ammonia stripping; temperature control; equalization; single-stage biological treatment with nitrification

NON-RECOVERY

BAT/NSPS/PSES/PSNS:

- ☛ No cokemaking process wastewater generated --> zero discharge

Proposed Regulated Pollutants for Cokemaking

BY-PRODUCT

BAT

- Ammonia-N
- Total cyanide
- Phenol
- Naphthalene
- Benzo(a)pyrene
- Thiocyanate
- Selenium
- Mercury
- TRC

NSPS

- Oil & Grease
- TSS
- BAT pollutants

PSES

- Ammonia-N
- Total cyanide
- Phenol
- Naphthalene
- Thiocyanate
- Selenium

PSNS

- PSES pollutants

NON-RECOVERY

BAT/NSPS/PSES/PSNS

Zero Discharge

Total Costs and Removals for Cokemaking

☛BAT

- Annualized costs for subcategory: \$8.6 million
- Conventional removals: 0.2 million lbs
- Priority and non-conventional removals: 0.43 million lbs

☛PSES

- Annualized costs for subcategory: \$0.3 to \$5.0 million
- Priority and non-conventional removals: 0.18 to 0.54 million lbs

Proposed Technology Options for Ironmaking

TECHNICAL COMPONENTS

BLAST FURNACES & SINTERING

BAT/NSPS:

- ☛ Solids removal with high rate recycle and metals precipitation; alkaline chlorination; mixed-media filtration of the blowdown wastewater; and sludge dewatering

PSES/PSNS:

- ☛ Solids removal with high rate recycle and metals precipitation; and sludge dewatering

Proposed Regulated Pollutants for Ironmaking

BLAST FURNACES

BAT

- Ammonia-N
- Total cyanide
- Phenol
- Lead
- Zinc
- TRC
- 2,3,7,8-TCDF

NSPS

- Oil & Grease
- TSS
- BAT pollutants

PSES

- Ammonia-N
- Lead
- Zinc
- 2,3,7,8-TCDF

PSNS

- PSES pollutants

SINTERING

BAT

- Ammonia-N
- Total cyanide
- Phenol
- Lead
- Zinc
- TRC
- 2,3,7,8-TCDF

NSPS

- Oil & Grease
- TSS
- BAT pollutants

PSES

- Ammonia-N
- Lead
- Zinc
- 2,3,7,8-TCDF

PSNS

- PSES pollutants

Total Costs and Removals for Ironmaking

☛ BAT & PSES

- Annualized costs for subcategory: \$5.4 million
- Conventional removals: 2.3 million lbs
- Priority and non-conventional removals: 3.5 million lbs

Proposed Technology Options for Integrated Steelmaking

TECHNICAL COMPONENTS

BAT/NSPS/PSES/PSNS:

- ☛ Solids removal and high rate recycle, with metals precipitation for blowdown wastewater; cooling towers for process wastewaters from vacuum degassing or continuous casting operations; and sludge dewatering

Proposed Regulated Pollutants for Integrated Steelmaking

BAT/NSPS/PSES/PSNS

- Lead
- Zinc

Costs and Removals for Integrated Steelmaking

☛ BAT & PSES

- Annualized costs for subcategory: \$4.8 million
- Conventional removals: 1.9 million lbs
- Priority and non-conventional removals: 4.1 million lbs

Proposed Technology Options for Integrated & Stand-Alone Hot Forming

TECHNICAL COMPONENTS

CARBON & ALLOY AND STAINLESS

BAT/NSPS:

- ☛ Scale pit with oil skimming; roughing clarifier; cooling tower with high rate recycle; mixed-media filtration of blowdown; and sludge dewatering (note: alternate implementation schedules were proposed)

PSES/PSNS:

- ☛ No proposed modification from existing PSES/PSNS

Proposed Regulated Pollutants for Integrated & Stand-Alone Hot Forming

CARBON & ALLOY

BAT

- Lead
- Zinc

NSPS

- Oil & Grease
- TSS
- BAT pollutants

PSES/PSNS*

Reserved

STAINLESS

BAT

- Chromium
- Nickel

NSPS

- Oil & Grease
- TSS
- BAT pollutants

PSES/PSNS*

Reserved

* No revision is proposed for the PSES/PSNS

Total Costs and Removals for Integrated & Stand-Alone Hot Forming

☛ BAT

- Annualized costs for subcategory: \$27.5 million
- Conventional removals: 22 million lbs
- Priority and non-conventional removals: 5.2 million lbs

Proposed Technology Options for Non-Integrated Steelmaking & Hot Forming

TECHNICAL COMPONENTS

CARBON & ALLOY

BAT:

- ☛ Solids removal; cooling tower; high-rate recycle; mixed-media filtration of recycled flow or of low volume blowdown flow; and sludge dewatering

PSES:

- ☛ No proposed modification from existing PSES

NSPS/PSNS:

- ☛ Water re-use, evaporation, or contract hauling --> zero discharge

Proposed Technology Options for Non-Integrated Steelmaking & Hot Forming, cont.

TECHNICAL COMPONENTS

STAINLESS

BAT/PSES:

- ☛ Solids removal; cooling tower ; high rate recycle; mixed-media filtration of recycled flow or of low volume blowdown flow; and sludge dewatering

NSPS/PSNS:

- ☛ Water re-use, evaporation, or contract hauling --> zero discharge

Proposed Regulated Pollutants for Non-Integrated Steelmaking & Hot Forming

CARBON & ALLOY

BAT

- Lead
- Zinc

NSPS

Zero discharge

PSES*

- Lead
- Zinc

PSNS

Zero discharge

STAINLESS

BAT

- Chromium
- Nickel

NSPS

Zero discharge

PSES

- Chromium
- Nickel

PSNS

Zero discharge

* No revision is proposed for this PSES

Total Costs and Removals for Non-Integrated Steelmaking and Hot Forming

☛ Carbon

- BAT

- Annualized costs for subcategory: \$4.0 million
- Conventional removals: 2.6 million lbs
- Priority and non-conventional removals: 0.34 million lbs

☛ Stainless

- BAT

- Annualized costs for subcategory: \$0.1 million
- Conventional removals: 100,000 lbs
- Priority and non-conventional removals: 18,000 lbs

- PSES

- Annualized costs for subcategory: \$0.03 million
- Priority and non-conventional removals: 12,000 lbs

Proposed Technology Options for Steel Finishing

TECHNICAL COMPONENTS

CARBON & ALLOY

BAT/NSPS/PSNS:

- ☛ Recycle of fume scrubber water; diversion tank; oil removal; hexavalent chromium reduction where applicable; equalization; metals precipitation; sedimentation; sludge dewatering; and counter-current rinses

PSES:

- ☛ No proposed modification from existing PSES

Proposed Technology Options for Steel Finishing, cont.

TECHNICAL COMPONENTS

STAINLESS

BAT/NSPS/PSNS:

- ☛ Recycle of fume scrubber water; diversion tank; oil removal; hexavalent chromium reduction where applicable; equalization; metals precipitation; sedimentation; sludge dewatering; counter-current rinses; and acid purification

PSES:

- ☛ No proposed modification from existing PSES

Proposed Regulated Pollutants for Steel Finishing

CARBON & ALLOY

BAT

- Hexavalent chromium
- Chromium
- Lead
- Zinc

NSPS

- Oil & grease
- TSS
- BAT pollutants

PSES*

- Hexavalent chromium
- Chromium
- Nickel
- Lead
- Zinc

PSNS

- BAT pollutants

STAINLESS

BAT

- Hexavalent chromium
- Chromium
- Ammonia-N
- Fluoride
- Nickel

NSPS

- Oil & grease
- TSS
- BAT pollutants

PSES*

- Hexavalent chromium
- Chromium
- Nickel
- Lead
- Zinc

PSNS

- BAT pollutants

* No revision is proposed for the PSES

Total Costs and Removals for Steel Finishing

☛ Carbon

- BAT

- Annualized costs for subcategory: \$3.4 million
- Conventional removals: 2.8 million lbs
- Priority and non-conventional removals: 0.24 million lbs

☛ Stainless

- BAT

- Annualized costs for subcategory: \$0.2 million
- Conventional removals: 0.72 million lbs
- Priority and non-conventional removals: 14 million lbs

Proposed Technology Options for Other Operations

TECHNICAL COMPONENTS

Direct Reduced Ironmaking

BPT/BCT/NSPS:

- ☛ Solids removal; clarifier; high rate recycle; filtration of blowdown; and sludge dewatering

BAT/PSES/PSNS:

- ☛ Reserved

Proposed Technology Options for Other Operations, cont.

TECHNICAL COMPONENTS

Forging

BPT/BCT/NSPS:

- ☛ High rate recycle; with oil/water separator for blowdown

BAT/PSES/PSNS:

- ☛ Reserved

Briquetting

BPT/BCT/BAT/NSPS/PSES/PSNS:

- ☛ No wastewater generation --> zero discharge

Proposed Regulated Pollutants for Other Operations

DIRECT REDUCED IRONMAKING

BPT/BCT/NSPS

- TSS

BAT/PSES/PSNS

Reserved

FORGING

BPT/BCT/NSPS

- Oil & grease
- TSS

BAT/PSES/PSNS

Reserved

BRIQUETTING

BPT/BCT/BAT/NSPS/PSES/PSNS

Zero discharge

Total Costs and Removals for Other Operations

☛ Direct Reduced Ironmaking

- BPT/BCT/NSPS
 - Annualized costs for subcategory: \$0.005 million
 - Conventional removals: 750 lbs

☛ Forging

- BPT/BCT/NSPS
 - Annualized costs for subcategory: \$0.01 million
 - Conventional removals: 450 lbs

General Implementation

- ☛ Mass-based limits for all subcategories
- ☛ Building-block approach
- ☛ Combined waste stream formula

Costs and Benefits

- ☛ Total capital costs: \$237.0 to \$255.5 million
- ☛ Post-tax total annualized costs: \$41.2 to 44.8 million
- ☛ Total monetized benefits: \$1.1 to 2.6 million
- ☛ Many of the potential environmental benefits cannot be quantified or monetized
- ☛ Environmental improvements: 4 additional streams (of 55) are modeled to achieve Ambient Water Quality Criteria

Economic Impacts

- ☛ Number of projected facility closures as result of proposed rule: 1
- ☛ Number of potentially affected employees: less than 500 FTEs
- ☛ Number of firms experiencing distress as result of proposed rule: 1 or more

Issues Addressed in the Recent Notice

- ☛ BPT flow allowance for semi-wet BOFs in the steel making subcategory
- ☛ Conversion of PSES concentration-based limits to mass-based limits for electroplaters in the steel finishing subcategory
- ☛ Applicability of ammonia-N limits in the stainless segment of the steel finishing subcategory

Issues Addressed in the Recent Notice, cont.

- ☛ Hexavalent chromium limits for the steel finishing subcategory
- ☛ Phenol pass through analysis for the cokemaking subcategory
- ☛ Control water flow allowance for the cokemaking subcategory
- ☛ BPT limits for the by-product cokemaking facilities

EPA Encourages Comments

☛ How to submit comments:

- Written comments (original and 3 copies) to
Mr. George M. Jett, Office of Water,
Engineering & Analysis Division (4303),
U.S. EPA 1200 Pennsylvania Ave. NW
Washington, DC 20460
- Electronic version is encouraged
- Specify docket number W-00-25
- Clearly identify Confidential Business
Information

Comments are Most Useful When They are:

- ☛ Specific

- ☛ With supporting data

- ☛ With supporting analyses and documentation

Schedule

- ☛ Proposal signed by EPA Administrator:
October 31, 2000
- ☛ Published in FR: December 27, 2000
- ☛ Notice published: February 14, 2001
- ☛ Comment period ends: March 26, 2001
- ☛ Promulgation signature date: April 2002

EPA Contact Information

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EPA's Iron and Steel Web Site:

<http://www.epa.gov/OST/ironsteel>

Iron and Steel Proposal is Available:

<http://www.epa.gov/OST/ironsteel/ironrule.pdf>